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ABSTRACT

This paper concerns the potential uses of management information systems (MIS) for clinical, administrative, research, and program evaluation applications in mental health settings. The process of developing and implementing a computer-assisted medical record in a community mental health center (CMHC) is described. Principles which facilitated change and which were used in planning for the MIS are enumerated. A discussion of personnel and committees involved in the change process emphasizes the gradual clinical acceptance of the MIS. Feature applications of the system utilized to gain clinical compliance are discussed, including: (1) linking the MIS to the medical record, with its mechanisms to ensure compliance with forms and procedures: (2) designing the system with input from clinical staff members: (3) utilizing an open planning process to permit development of an informed consensus: and (4) gradually developing and implementing the MIS, with maximal preparatory training and quality control. (Author/NRB)

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GAINING CLINICIANS' COMPLIANCE WITH A MANAGEMENT INFORMATION/PROGRAM EVALUATION SYSTEM

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GAINING CLINICIANS' COMPLIANCE WITH A MANAGEMENT INFORMATION/PROGRAM EVALUATION SYSTEM

Management information systems hold great potential for facilitating effective planning and program evaluation activities in mental health settings. But a problem develops in gaining clinicians' acceptance. Since the institutional benefits are often seen as far removed from the day to day operations of therapists, their compliance with the data collection is typically grudging and partial. This situation can undermine the system, jeopardizing the quality of the data and the confidence in resulting findings; hence the litany: "garbage in; garbage out". It is common for MIS planners to retreat from clinical applications, in which case the system development is skewed toward management uses and clinician involvement is minimized (Payton, 1980). But such a system is separated from the vital mainstream of the organizations activity. Alternative approaches, which emphasize both clinical applications and clinician involvement, are needed.

Those developing management information systems have a critical need for practical assistance in gaining cooperation of clinical staff. Planning a process for assuring compliance is as important as meeting the information needs of the user. While there is a sizable literature on the structure and content of MIS systems in mental health there is a lack of detailed accounts describing the factors which influenced the design of such systems and the processes used in developing and implementing such systems. (Attkisson, C., Hargreaves, W., Horowitz, M., & Sorensen, J., 1978; Coursey, R., Specter, G., Munell, S., & Hunt, B., 1977; Crawford, J., Morgan, D., & Gianturco, D., 1974; Hedlund, J., Sletten, I., Evenson, R., Altman, H., & Cho, D., 1977).

In the discussion below the process of developing and implementing a computer-assisted medical record in a CMHC will be described. While many

factors exerted an influence in the development of this record, the process used in its development and implementation has been the key to its acceptance by clinicians. Various aspects of this process will be identified and their respective contribution to the overall project highlighted.

In keeping with the literature on organizational innovation (Bennis, 1963; Filstead, Altman & Crandell, 1980; Havelock, 1969; Human Interaction Research Institute, 1976; Kaplan, 1978; Taylor, 1970; Zaltman, G., Duncan, G., & Holbek, J.), the planning for the MIS took advantage of a number of principles which alone or in combination facilitate the change process. Among them are:

1) a dissatisfaction with the current situation or organizational context;
2) an understanding, on the part of those who will be required to change, of the rationale behind the decision to change;
3) a concurrence, on the part of those who will be required to change, with the rationale offered for the change;
4) an ability, on the part of those who will be required to change, to provide input into the discussion about why change, what to change, how best to make the change, and who should be active in directing the change process;
5) a belief that what one is changing to is desirable, or at least an improvement on the current situation; and,
6) a realization that change will be coming; therefore, it is in the best interests of those who will be impacted by the change to actively shape and, if possible, direct the change process, rather than positively accepting the change.

The Organization Context

With the receipt of an operations grant, the CMHC reevaluated its

information needs and decided that a new system was needed. It had to be designed for maximum flexibility to be applicable in a CMHC located within a larger Institute of Psychiatry and medical center. Some clinical programs were not included in the CMHC, while some free standing community agencies were funded affiliates in the grant. Each program had developed with substantial independence. Accordingly, there were considerable differences in procedures and record keeping functions. While there was a nominal institutional commitment to a common problem-oriented medical record, programs varied in their compliance and in the modifications made.

This organizational complexity was influential in reaching one of the crucial decisions assuring successful development of the system. Top administration decided that a new medical record would be developed and used by all Institute programs. Further, this document would be the basis of the administrative planning and program evaluation information as well as the source of clinical data. In contrast to many centers, which choose to have a "stand alone" system, this decision effectively merged the MIS into the medical record. This decision meant that all the quality assurance or peer review mechanisms in place to protect the medical record could also be used to protect the integrity of the information system. For instance, failure to complete the discharge transactions necessary for the MIS would also mean that Medical Records would consider the chart incomplete and so could be counted on to pursue the procrastinating therapist.

The system's complexity had another inadvertent but important consequence: it highlighted the competing interpretations of what was required to create an information system. Perhaps it is a reality of organizational life, or something peculiar to this setting, but the middle management/program director level of the organization had a distrust of

executive level fiats. Such reservations were compounded by an early experience of working at crosspurposes. Confusion existed over whether or not the system should be "free-standing", using our own mini-computer; tied into the hospital's data base; or linked into an existing MIS either locally or through the MSIS system of Rockland Research Institute. While middle management considered the variables associated with a free standing system, the executive level was promoting the value of linking into either the local system or MSIS. Working at such cross purposes caused many of the middle management groups to question the extent to which their input and participation was useful.

Ultimately, the decision was reached, by administration, that the advantages of tying into the hospital's data base outweighed the liabilities. This decision meant that a "home grown" version of a MIS was needed and this fact met with the approval of the middle management. At the same time, given the friction that occurred over issues such as the one described above, it was deemed necessary to begin the project again with a different tone and structure. The way was paved for "design by committee" since the need for consensus was felt to outweigh the need for speed.

Planning and Implementation by Working Committee

A two-tiered committee structure was created: 1) a steering committee (five members) composed of four executive level individuals and a project manager/systems analyst from data processing, and, 2) a working committee (20 members) composed of a representative from each clinical program, nursing, administration and the attending staff. The project was directed by a middle management level staff member who had access to the steering committee, chaired the working committee, and, if necessary, could use his direct access to the Director to accomplish a task.

Before describing the process used to facilitate the design and implementation of this information system it is important to describe the mood and tone of those who were inducted to serve on the working committee. The word "inducted" is used because the request to participate on the working committee was sent to the program directors. If a program director could not serve, he or she was to appoint a representative. No program directors served on the working committee. Consequently, a line staff from each clinical program was inducted. Without being maudlin about the climate which surrounded the working committee, it is fair to characterize participants as: 1) negative toward the task, 2) participating by force rather than choice, 3) desiring to make the least changes to the existing clinical operation -- therefore attempting to fit the information system into the status quo, 4) suspicious and dubious of the need for and value of a computer-assisted medical record, 5) resistive, or at best not committed to the decision to undertake such a project, and 6) suspicious of the motives of the other committee members. While this may not represent the best frame of mind necessary for tackling such a job, it was the frame of mind that had to be worked with.

Despite the initial reluctance of its members, the formation of the working committee and the manner in which it worked was the most important factor in the development of this computer-assisted medical record. The formation of the committee accomplished the following objectives:

a) it made the responsibility and accountability for the project publically known and explicitly clear;

b) the membership represented the key staff from their program or division, those who knew the realities of their situations and who had a track record of getting things done;

c) these members had sign off powers -- committing their program directors and programs to the decisions of the group. This meant that these staff had to discuss and explain the thinking behind the work of the working committee to their peers and get their reactions in order to effectively participate in designing the system. While there was variability in the degree to which each member informed his or her respective program of such matters it was clearly a responsibility he or she had and would be held accountable for if problems arose. This procedure undercut the familiar passive-aggressive ploy in which an unwilling participant apparently assents to change and then denies having been consulted. At best, programs were kept informed of the design process. At worst, their representative committed them to accept the committee's decisions;

d) finally, the working committee, symbolically at least, represented the administrator's belief in a participatory style of decision making. Pragmatically speaking, without the impact of the working committee, the system, although it could have been created, would have run into such a high level of resistance and non-compliance that for all practical purposes it could have been non-functional.

The committee met in weekly, all day meetings (9:00 a.m. - 3:00 p.m.) to assure attention to the task at hand without the disruptions of routine job responsibilities. Written minutes kept track of agenda, discussions, and decisions made. In terms of process, the meetings, although focused on a specific topic or topics, were allowed to have a free wheeling character to them. Individuals could get off on side topics in order to think out

loud about the implications of a particular aspect of the proposed MIS for their clinical operations. Because of the dynamic quality of these meetings, it was not uncommon for the committee to decide to rethink or overrule a decision it had made in a previous session. It occurred quite often when the new information brought to bear on the topic was persuasive enough to rescind the previous decision. We labeled this "doing-undoing-redoing" decision making style the "full cycle process". Consequently, if a committee member had obtained a favorable decision on an issue of importance to them, he or she still needed to attend future meetings for fear that it would be undone or rethought.

As the work of the committee progressed, it became clear that some members were more interested and/or involved in the development of the new record than others. Those interested, for whatever reason, stayed actively involved. Because they did, the MIS profited from their input. The participation of other members became marginal. This attrition was not destructive to the process. Less involved members realized their sign-off responsibilities and so were not about to re-do what had been worked through. Their absense meant that the true working membership dwindled to a more manageable size. Of the 20 working committee members, only 6 could be considered "actively interested/involved" in the MIS design. They formed an informal group which saw to it that whatever had to be done, got done. This committee took on the role of information systems advocates. Collectively, they provided the drive and spirit necessary to sustain the undertaking.

The active support and involvement of clinicians, especially line staff, was essential to the development, design and implementation of the MIS. These individuals know the organizational realities and the styles of clinical work. Such understanding can provide valuable insights for

enhancing the acceptance and compliance with the demands of the MIS. But a balance is required. While one needs to keep the concerns of the clinicians foremost in the design of such systems, to the extent that these concerns would distort the ability of the MIS to accomplish required tasks, they have to be resisted. Their desire to preserve the status quo was a case in point. For this reason, particularly, it was crucial to have a program evaluator chairing the committee. His perspective provided a crucial counterbalance (Filstead & Altman, 1979).

The committee worked slowly. Not only did the process of consensus building take time, but substantial energy was required for the development of documentation and training materials. Instruction was more than an afterthought. To facilitate major changes in day to day staff operations a concerted effort was made to inform staff well in advance, to help them visualize what would be required of them and how the new process would work, and to make available printed and human resources to respond to their questions.

Implementation of the system took place on the same protracted schedule and with the same eye to supporting staff through the transition. Implement in phases. Our experience indicates that doing too many new activities - at once - can cause confusion. Furthermore, in spite of all well thought out plans, things go wrong with predictable regularity. Programs, even though they had been tested, did not work right. Procedures proved unwieldy or presented gaps that became apparent only after they are in use. In our situation, clinical forms were implemented, manually, for three months before computer entry began. The last of the routine forms was implemented seven months after the first, and then only with the programs that were best prepared.

Quality control monitoring represents the last critical means of gaining clinical acceptance of the MIS. Each phase of implementation must be followed by close observation of the work generated. It was routine for as many as 90% of the forms completed to have errors at first (Crandell, Altman, and Filstead, 1980). What is most alarming is not the high initial error rate, but the fact that many systems lack mechanisms to guarantee improvement. We chose to watch closely, almost compulsively, and were rewarded by seeing mistakes disappear almost entirely. Clinical forms were screened first by program secretaries and then by data entry clerks, with forms returned for correction if mistakes were found. A third level of quality control compared the original with the computer-generated report and therefore permits monitoring of data entry and programming errors as well as clinicians' mistakes. The close monitoring was only occassionally seen as punitive. Although consequences of noncompliance were clearly articulated, and meaningful (e.g., physicians could lose admitting priveleges in the extreme case), the main thrust was toward supplying reminders and corrective information in carefully targetted doses. In the context of advance education and participation in planning, insistence on accurate data was experienced as an appropriate protection of the data base rather than a persecutory exercise. As the error rate dropped, program administrators assumed responsibility for the quality of data and the close attention was directed at another program or form. Gradual implementation, then, afforded the additional advantage of permitting close monitoring of the quality of clinical cooperation.

Summary

This paper has tried to condense 2 1/2 years of work on planning and implementing management information/program evaluation system while

providing a sense of the working atmosphere. It is unrealistic to expect clinicians to be enthusiastic, but our experience suggests that it is feasible to gain clinical acceptance of an MIS. Through planning or happenstance we found the following features of our system to be especially useful in assuring successful implementation:

1) Basing the information and evaluation system on the medical record, which has relevance to the clinicians' day to day work and is protected by pre-existing quality control mechanisms;
2) developing a participatory mechanism for tapping line staff input, to maximize clinical utility;
3) designing the system to maximize multiple interests; you are doing well if you are making everyone equally unhappy;
4) requiring the public accountability of the program sign off to assure compliance with decisions made; and,
5) implementing gradually to minimize confusion and allow close quality control monitoring.

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